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26

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/172,263	10/14/98	ISHII	A PM256389

MM12/1117

PILLSBURY MADISON & SUTRO
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WASHINGTON DC 20005-3918

EXAMINER

SPECTOR, D

ART UNIT

PAPER NUMBER

2873

DATE MAILED:

11/17/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

MM12/1117

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APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/172,263	10/14/98	038	SPECTOR, D	2873 11/17/99
First Named Applicant	ISHII.			
	35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION ZOOM LENS SYSTEM

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
0 PM256389	359-687.000	E37	UTILITY	NO	\$1210.00	02/17/00

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch numbers. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary:

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PATENT AND TRADEMARK OFFICE COPY

Notice of Allowability

Application No.

09/172,263

Applicant(s)

ISHII et al.

Examiner

David N. Spector

Group Art Unit

2873



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to AMENDMENT

☒ The allowed claim(s) is/are 1-38

☒ The drawings filed on Oct 14, 1998 are acceptable.

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

Georgia Epps
Supervisory Patent Examiner
Technology Center 2800

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DETAILED ACTION - ALLOWANCE

Reasons for Allowance

1. Claims 1-38 are allowed, in light of applicant's amendments/arguments. The examiner's statement of reasons for allowance follows.

2. Applicant's independent claims 1, 10-17, 27, 32, and 35-38 are each directed to improvements on the basic design of a particular class of compact zoom lenses. The object of these improvements is to reduce size and weight by minimizing the total number of constituent lens elements, while simultaneously maintaining and/or improving the image quality of the zoom lens system.

a) Applicant's independent claims each includes a set of features/limitations that are known from prior art, and which constitute a "baseline" for the improvements/inventions of the independent claims. The baseline features include: first positive lens group **G1**; second negative lens group **G2**, third positive lens group **G3**; fourth positive lens group **G4**. During zooming from the wide-angle end to a telephoto end of the system: while **G1** remains fixed, **G2** moves from the object side to the image side; **G3** moves from the image side to the object side; and **G4** moves to keep the image plane at a constant position. The particular elements of applicant's claims which constitute the improvements/inventions of the independent claims are detailed in subparagraphs B-E, below.

b) With respect to applicant's independent claim 1, **G1** consists of two lenses, a negative lens and a positive lens; or one positive lens alone. **G3** includes three lenses, a positive lens, a positive lens, and a negative lens; or two lenses, a positive lens and a negative lens. **G3** further includes at least one aspherical surface.

c) Claims 10-17 each adds one or more features/limitations to the baseline zoom lens configuration. Claim 10 includes the limitation $0.5 < |F_2/F_3| < 1.2$; Claim 11 includes the limitation $0.49 < |L_3/L_2| < 1$; Claim 12 includes the limitation $2 < (F_{3,4W})/IH < 3.3$. Claim 13 includes the following

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limitations: the lens group **G3** expressly includes a positive lens convex on the object side, and a negative doublet consisting of a positive lens convex on the object side and a negative lens convex on the image side. Claim 14 includes the two limitations $0.5 < |F_2/F_3| < 1.2$ and $0.49 < |L_3/L_2| < 1$; Claim 15 includes the two limitations $0.5 < |F_2/F_3| < 1.2$ and $2 < (F_{3.4w})/IH < 3.3$; Claim 16 includes the two limitations $0.49 < |L_3/L_2| < 1$ and $2 < (F_{3.4w})/IH < 3.3$; and Claim 17 includes all three limitations $0.5 < |F_2/F_3| < 1.2$, $0.49 < |L_3/L_2| < 1$ and $2 < (F_{3.4w})/IH < 3.3$.

d) Claims 27, 32, 34, and 35 further limit the baseline zoom lens with the following structural features/limitations. In Claim 27, **G1** consists of a single positive lens and the object-most lens in **G2** is negative and the limitation $v_{21} < 40$ is imposed on the dispersion of this negative lens element. In Claim 32, **G3** includes a doublet consisting of a positive lens and a negative lens, **G4** consists of a single positive lens, and **G3** is further limited to move constantly from the image side to the object side during zooming from the wide-angle end to the telephoto end. In Claim 34 each of the lens groups **G2** and **G3** includes a doublet consisting of a positive lens and a negative lens, and **G3** is further limited to move constantly from the image side to the object side during zooming from the wide-angle end to the telephoto end. In Claim 35, **G3** has constant motion during zooming and includes a positive lens and a doublet consisting of a positive lens and a negative lens.

e) With respect to each of the independent Claims 36-38, applicant generalizes the description of the zooming motions each of the four lens groups to the conditions that the spaces between **G1** and **G2**, between **G2** and **G3**, and between **G3** and **G4** vary independently during zooming and adds the following limitations to improvements/inventions commensurate with these Claims. In Claim 36, **G3** consists of a double convex positive lens; and a doublet consisting of a positive meniscus lens convex toward the object side; and a negative meniscus lens. The group **G4** consists of a double convex lens with its larger radius of curvature directed toward the object side. In Claim 37, **G1** consists of a single positive lens; **G2** consists of (in order from the object side) a single lens and a doublet consisting of a negative and a positive lens; **G3** consists of a single lens and a doublet consisting of a positive and a negative lens. In Claim 38, **G1** consists of either two lenses or a

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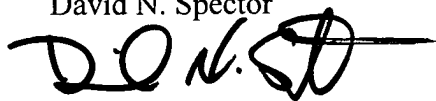
positive lens and a negative lens; **G2** and **G3** each contain a doublet consisting of a at least one set of a positive lens and a negative lens.

3. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of applicant's independent Claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The Claimed invention is therefore considered to be in condition for allowance as being novel and nonobvious over prior art. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

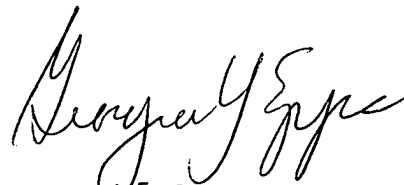
Contacting the Examiner

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Spector whose telephone number is (703) 305-1521. The examiner can normally be reached from 6:30 AM to 3:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps, can be reached on (703) 308-4883. The fax number for the organization where this application is assigned is (703) 308-7722.

David N. Spector



November 9, 1999



Georgia Epps
Supervisory Patent Examiner
Technology Center 2800